

Ref. Mgr. SK
Asst. Mgr. RC
Biologist _____
Off. Asst. _____
File _____

UNITED STATES GOVERNMENT

memorandum

DATE: March 5, 1992

REPLY TO
ATTN OF: ARD-Refuges and Wildlife, FWS, Atlanta, GA (WHM)

SUBJECT: Fire Management Planning Guidance - DUE DATE JUNE 1, 1992

TO: All Refuge Managers, FWS, Region 4

The District Fire Management Officers and Regional fire staff have jointly developed the attached documents to assist you in the preparation of the plans required by the fire planning guidance memo dated 12/18/91.

Attachments 1-3 are to be used in preparing interim refuge fire management plans and amending approved fire management plans.

Attachments 4-8 provides guidance in developing refuge prescribed fire plans, and are required if you have either prescribed management burns or prescribed natural fire.

If the refuge has an approved fire management plan, but it does not specifically address the 12 required elements and does not include the required training plan, then the fire management plan must be formally amended (see Attachment 1). The amended plan along with the concurrence page must be sent to the Regional Office for approval.

Attachment 1 Decision chart for determining needed fire management planning. This will allow you to determine what level of planning you need. **Note:** a training section is required in all plans. If you amend your approved refuge fire plan, please send the entire amended plan to the Regional Office for approval, not just the amended section or page(s).

Attachment 2 Format and directions for an interim fire management plan. Interim plans will be prepared in this format. All underlined sections must be addressed. If a section is not applicable to your refuge or you have only limited data, please indicate, but do not omit the topic from your plan.

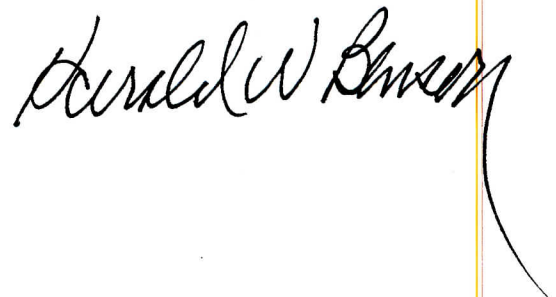
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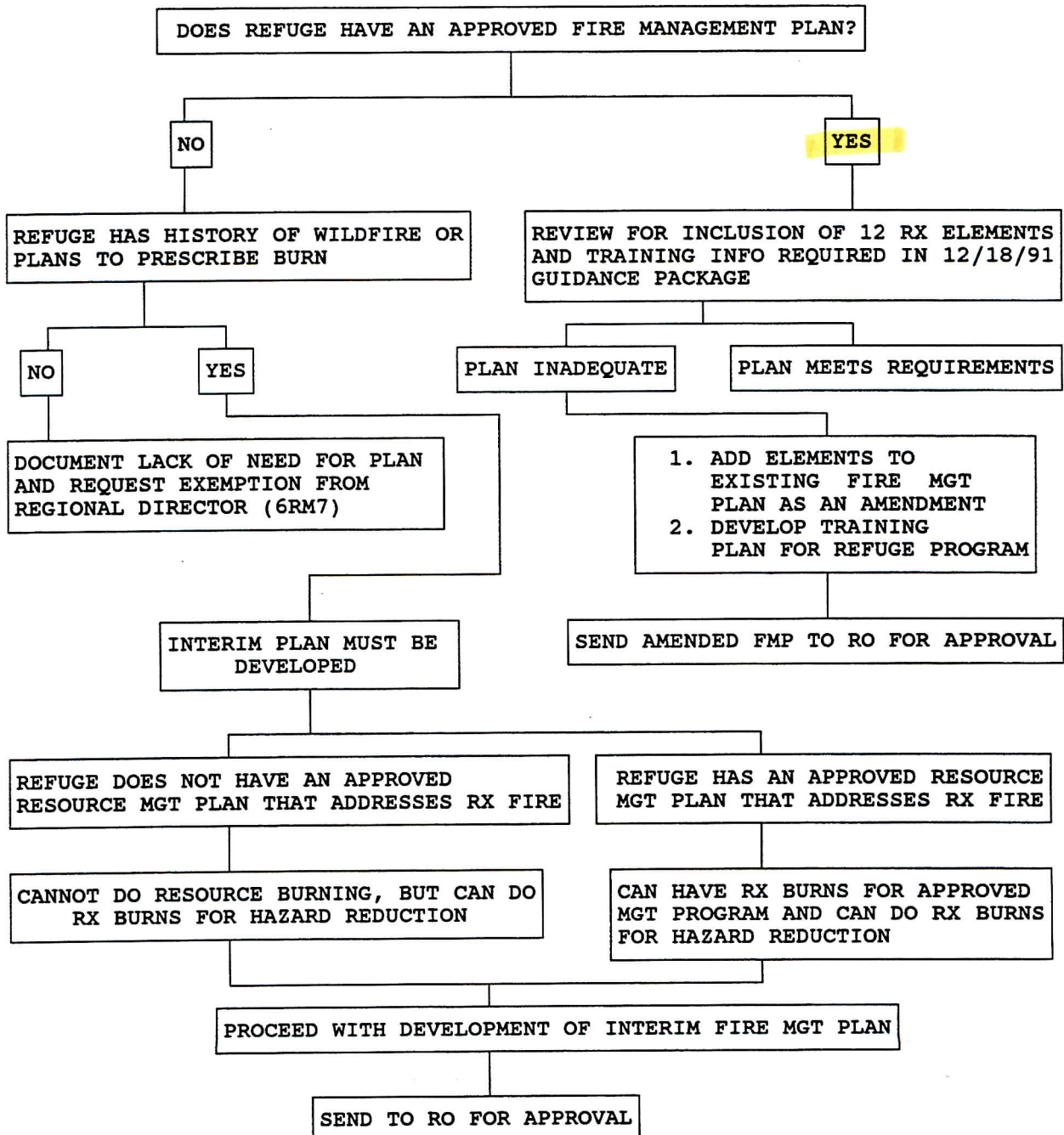
ST. VINCENT NATIONAL
WILDLIFE REFUGE

- Attachment 3 Regional preparedness levels 1-5. These are required to be a part of an interim plan. They can be attached to your plan, but should be referenced in the plan.
- Attachment 4 Copy of the prescribed fire plan. All items on the form must be addressed. The attached computer disc contains a blank copy of the plan. The form is in Word Perfect 5.0.
- Attachment 5 Example of a prescribed fire plan for a management burn.
- Attachment 6 Example of a prescribed fire plan for a prescribed natural fire. Again, all items must be addressed.
- Attachment 7 Signature page for your refuge annual prescribed fire plan. A vicinity map showing location of all burns should be included with this attachment.
- Attachment 8 Preburn briefing format. This is not a required form to be completed and submitted for approval. It is a working document that is to be used on the day of the burn to insure that all plan elements are covered. You may be using a different form and that is permissible. The important thing is that someone is charged with recording fire and weather data during the burn, and insuring that it is recorded on the evaluation sheet. In most cases the burn boss will not have time to do this. A copy of a briefing form is included on the disc.

All prescribed fire plans submitted for approval must be in the format shown in Attachment 4.



cc:
Associate Managers (1-4)
Frank Bowers

DECISION CHART FOR DETERMINING NEEDED FIRE MANAGEMENT PLANNING

ATTACHMENT 2

(REFUGE NAME) INTERIM FIRE MANAGEMENT PLAN

PREPARED BY: _____ DATE _____

SUBMITTED BY: _____ DATE _____
REFUGE MANAGER

REVIEWED BY: _____ DATE _____
REGIONAL FIRE COORDINATOR

CONCURRED BY: _____ DATE _____
ASSOCIATE MANAGER

CONCURRED BY: _____ DATE _____
ASSISTANT REGIONAL DIRECTOR

APPROVED BY: _____ DATE _____
REGIONAL DIRECTOR

(REFUGE NAME) INTERIM FIRE MANAGEMENT PLAN

I. PURPOSE: The Interim Fire Management Plan should contain a statement similar to: "This plan is intended to be used only until a comprehensive Fire Management Plan (FMP) can be written and approved." A statement giving the expected completion date of the comprehensive plan is required. This cannot be later than three years after the approval date of the Interim plan.

II. DESCRIPTION OF CURRENT SITUATION ON REFUGE: The exact information necessary to completely address each of the areas listed below may not be available. Should accurate data be unavailable your best estimate will suffice. After all, this is an interim plan and a complete plan will be expected in a few years. Preparation of the interim plan should not be delayed because of the lack of information. An attempt has been made to direct you to resources that can answer some of the technical questions. When in doubt, call your District FMO for assistance.

- A. **HABITAT MANAGEMENT OBJECTIVES:** These should reflect the overall refuge objectives. If no refuge management plans have been prepared the refuge objectives should be found in the enabling legislation under which your refuge was acquired.
- B. **MANAGEMENT CONSTRAINTS:** Any factors that would limit your management activities. These may include legal, political, and physical qualities of the refuge.
- C. **HABITAT TYPES AND FUEL MODELS:** Fuel models can be from the National Fire Danger Rating System (NFDRS) or Fire Behavior publications (S-390 course material; Aids to determining Fuel Models for Estimating Fire Behavior, GTR INT-122, Intermountain Forest and Range Experiment Station). These publications provide visual and written aids in determining the fuel types present. Your District FMO can help do this.
- D. **CURRENT HABITAT MANIPULATIONS:** Note what management actions are planned or are currently being carried out that would affect the fire program. Also list any significant pre-refuge ownership activities.
- E. **FIRE ECOLOGY:** Your knowledge may be limited on this subject, especially if yours is a brand new refuge. The Regional Fire Ecologist and state fire agency can be of help.

1. HISTORICAL FIRE OCCURRENCE: An estimate of the frequency of natural fires in each of the major habitat types in which burning is planned or is needed. In addition, any known wild or prescribed fires in the recent past should be included. Your local state forestry commission office may be able to help (reference your DI-1202's).
 2. NATURAL ROLE OF FIRE: Describe how fire is important to the habitat types present on the refuge. Include such items as the intensity of natural fires, the dependency of the system on fire, the possible consequences of fire exclusion and other factors that define the fire ecology of the area. The Regional Fire Ecologist can assist in locating this type of information.
- F. PHYSICAL FEATURES: This should include roads, bodies of water, refuge structures, private structures that could be threatened by refuge fires, and any other features that could affect fire management.
- G. MAP(S): As a minimum, maps should include: (1) Refuge boundaries and any inholdings; (2) roads, bodies of water and other existing features that would serve as fire barriers; (3) structures and other resources that require special protection; (4) habitat types; and (5) special features that would support suppression activities such as water sources and helispots.

III. WILDFIRE:

- A. SUPPRESSION POLICY: Reference to 6RM7.2 applicable subsections.
- B. FIRE SEASON: The wildfire season for the refuge can be determined for the purposes of the Interim FMP by using local season developed by local agencies. This can be updated as specific information is developed.
- C. AVAILABLE RESOURCES: This would include both refuge resources and the resources of local agencies accessed by cooperative agreements, or open purchase orders.
- D. EXTENDED ATTACK PROCEDURES: Develop procedures for suppressing fires that escape initial attack. The first line of defense would be local support agreements. Procedures will include notification of state dispatch center, District FMO, and regional fire management staff, either to let them know what is going on, or to ask for assistance.

- E. LIMITS TO SUPPRESSION ACTIVITIES: This would include such items as not using tractors in wilderness areas or plowed line in wetlands.
- F. DETECTION POLICIES: Determine the method of detection desired or available. Coordinate with local forestry agencies, or obtain information on arranging flights during periods of high fire danger (see District FMO for regulations or for more information on cooperative agreements with your state agencies).
- G. REFUGE DISPATCH PLAN: Examples included in package.

IV. PRESUPPRESSION AND HAZARD REDUCTION:

- A. DETERMINE NEED: Document why prescribed fire is recommended instead of alternative fuel reduction treatments. Prescribed burning should be more cost effective than other treatments if it is to be used. The following will be used to determine if hazard reduction prescribed fires are required in order to protect refuge resources:
 - 1. SUPPRESSION DIFFICULTIES: Fuel loads are such that available suppression forces cannot protect resources in the event of a wildfire one would expect during a normal fire season. (The local wildfire suppression organizations or your District FMO can give you an estimate of this)
 - 2. FIRE INTERVAL: The fuels in question have gone more than twice the natural fire frequency without a significant fire. (Again, the local fire forces can assist you in determining this.)
- B. JUSTIFICATION:
 - 1. IMMEDIATE NEED: Explain why postponing hazard reduction prescribed fires would not be prudent.
 - 2. COST/BENEFIT: Estimate the cost of the proposed hazard reduction prescribed burn as compared to the benefits to the resource at risk. Remember that destruction of critical habitat, refuge resources, public safety and the reduction of the liability of refuge wildfires escaping to private lands are very good reasons to reduce hazards. (District FMO can assist)

3. FUTURE MANAGEMENT NEEDS: Address the need for repeated periodic burns to maintain fuel conditions and specify interval.
- C. PRESCRIBED FIRE PLANNING: You must address the following items as they relate to either management ignited, or naturally (lightning) ignited prescribed fires. Additional information required specifically for naturally ignited prescribed fires is covered at the end of this section.
1. LAND USE OBJECTIVES: This should be a statement listing the reasons for the burn, such as hazard reduction or habitat enhancement, and how fire will achieve these goals. Statements here should explain how fire will assist in meeting the overall refuge objectives described in Section II-A.
 2. GENERAL CONSTRAINTS TO AND IMPACTS OF THE PRESCRIBED BURNING PROGRAM:
 - a. Constraints Which May be Required Due to National, Regional and Local Fire Activity: This should include how the refuge fire program will interact with National and Regional Preparedness Plans (The regional plan is included in this package, and must be attached to the Interim FMP.) In addition, procedures for obtaining permits and other local prescribed burning requirements should be incorporated. Also included in this section should be the limits to the number of prescribed fires that can be burning at one time. This includes both on the refuge and in the local area. The number of refuge fires will be determined, for the most part, by the available suppression resources. The number of fires in the general area will most likely be determined by the state fire agencies.
 - b. Impacts on Visitors, Users, and Local Communities, Both On and Off Site: This should address, in general terms, the effect of closing various portions of the refuge during fire operations, smoke management procedures, public information during burns, and the requirements for public information and education concerning the refuge fire program.

- c. Considerations of Environmental, Economic, and Social Effects, Both On and Off Site: Regional Policy requires that each year's Prescribed Fire Plans go through the Section 7 process. An Environmental Assessment is not required for the Interim FMP, but may be for the final. When considering the environmental effects, remember that we need to stress the positive aspects of prescribed burning along with how we are going to mitigate the adverse effects, such as smoke. One of the important benefits may be the dependance of many threatened and endangered species on fire. There are also entire ecosystems, such as longleaf pine, that require fire to exist.

3. FUEL AND WEATHER FACTORS

- a. Expected Fire Behavior: Describe the fire behavior required to achieve the management objectives stated. In the FMP these should be in broad terms. The Prescribed Fire Plans should cover the exact fire behavior requirements for each burn. This must include the Energy Release Component (ERC) along with observable fire behavior parameters such as flame length and rate of spread. Estimations of these can be obtained from the National Fire Danger Rating System (NFDRS) and fire behavior programs. Your District FMO can provide some insight on the working of these programs.
- b. An Analysis of the Cumulative Effects of Weather on Fire Behavior: This should describe parameters, including drought, freeze, etc., to be monitored and used in developing prescriptions. An indicator of the effect of drought, such as the Keetch-Byron or Palmer Indices should be included. Live and dead fuel moisture, soil moisture and other factors should also be included. The materials needed to determine these parameters, and help with their use can be obtained from your District FMO.

4. LIMITS OF PRESCRIBED BURN ACREAGE AND PERIMETERS: For management ignited fires this can be defined as the boundaries of the burn unit.
5. BUFFER AND SAFETY ZONES: While these are to be specifically identified in the individual Prescribed Fire Plans, a description of the type of buffers and safety zones need to be outlined in the FMP.

6. CONTINGENCY PLANS: These should include provisions for controlling an escape and procedures to be taken in the event of emergency medical evacuations (reference station Safety Plan).
7. NATURALLY IGNITED PRESCRIBED FIRE: Because of limited available data on fire, the use of naturally ignited prescribed fire is unlikely under the Interim Fire Management Plan. However, should it be a viable option, the following special considerations must be taken into account along with the planning elements listed under management ignited fires.
 - a. Limits on Perimeter Length and Acreage Burned: This will require intensive analysis. In many cases, the limits will be determined by existing features that can serve as fire breaks. Size and perimeter limits must take into account the resources available to suppress the fire should it become necessary. Buffer and safety zones should be determined, and in many cases will be the limiting factor in determining if the fire is in prescription. Fires occurring in organic soils require different responses than those in mineral soil because of smoke management concerns and possible resource limitations.
 - b. Monitoring: Plans to monitor a naturally ignited fire must be in place. In addition, a decision process must be developed to determine if the fire remains in prescription. This should take into account not only the size of the fire, but current and forecast weather, drought indices and fuel moisture trends.
 - c. Certification of conditions: Provide for daily certification by the Project Leader that the prescribed natural fire is, in fact, still in prescription and is expected to remain so in light of forecast conditions.
 - d. Suppression: When a naturally ignited prescribed fire exceeds, or is expected to exceed, the approved prescription parameters, it becomes a wildfire and must be suppressed.

IV. TRAINING

- A. TARGET GROUP: All refuge personnel that may be called upon to participate in wildfire suppression or prescribed burning must have the minimum fire training. In addition, some more advanced training may be necessary.
- B. MINIMUM FIRE TRAINING:
 - 1. BASIC REQUIREMENTS: S-130 (Basic Firefighter), S-190 (Introduction to Fire Behavior) plus Standards for Survival are National Requirements for all participants in fire activities.
 - 2. S-390: If prescribed burning is planned, at least one staff member must have S-390, Intermediate Fire Behavior. This is needed to develop the fire behavior portion of prescribed fire plans.
 - 3. ADDITIONAL TRAINING: In consultation with your District FMO plan to schedule training for the appropriate level to handle refuge wildfires. Individual training plans should be developed for each position that is involved in the fire management program (Show training and experience for the planned fire level required in each position). For resources of additional qualified personnel to handle fires burning into the second burning period contact your District FMO.
 - 4. PHYSICAL REQUIREMENTS: All participants in the fire program must meet current physical standards as detailed in 6RM7.2.

SOUTHERN REGIONAL PREPAREDNESS PLAN

PREPAREDNESS LEVEL I

Description - Little or no fire activity area wide, and most units have low to moderate fire danger. Little of no commitment of Southern Area resources. Units are handling all incidents without outside resources. Potential for escaped fire is low.

ACTION	ASSIGNED TO
A. SACC staffed seven days a week/or on call list with answering service (24 hours), 0700-1600 with (staff may be increased to meet presuppression/non-fire situations or additional incidents and out-of-area support).	SACC Coordinator
B. Daily Situation	SACC Coordinator
C. Prescribed Burning is approved throughout the area using established policies.	*Directorate
D. Southern Interagency Fire Cache is open five days a week.	SACC Coordinator
E. Helicopters and Airtankers may be placed on 2 hour call with Area approval.	

*Directorate: Director of Fire and Aviation, USFS; Assistant Regional Director, Refuges, FWS; Associate Regional Director, Operations, NPS.

SOUTHERN REGIONAL PREPAREDNESS PLAN**PREPAREDNESS LEVEL II**

Description: Moderate fire activity. One or two units with high fire danger or above. Commitment of local resources moderate. Some exchange of resources across boundaries - little or no commitment of area resources. Potential for escaped fires is moderate.

ACTION	ASSIGNED TO
A. Staff Southern Area Coordination Center daily from 0600-1800 (will be adjusted to meet needs).	SACC Coordinator
B. Make recommendation on Forests staffing needs.	SACC Coordinator
C. Southern interagency Fire Cache is open seven days a week, or as needed.	SACC Coordinator
D. Lead plane and pilot are available on request seven days a week.	SACC Coordinator
E. Units notify SACC daily of actual and predicted weather situations (COB).	Other Units
F. Prescribed burning operations continue.	*Directorate
G. Helicopters and airtankers on regular hours available for immediate dispatch.	

*Directorate: Director of Fire and Aviation, USFS; Assistant Regional Director, FWS; Associate Regional Director, Operations, NPS.

SOUTHERN REGIONAL PREPAREDNESS PLAN**PREPAREDNESS LEVEL III**

Description: Two or more units experiencing incidents requiring a major commitment of Southern Area resources. One or more fires becoming class D or larger. (One incident management team is committed to an incident).

ACTION	ASSIGNED TO
A. SACC staffed seven days a week, 24 hours a day.	SACC Coordinator
B. Activate intelligence section.	F.S. Operations
C. Daily morning briefing for Directorate and line officers.	SACC Coordinator
D. Southern Interagency Fire Cache is open 24 hours a day, or as needed.	SACC Coordinator
E. Provide 7 day lead plane coverage.	SACC Coordinator
F. Canvass Forests for need of severity funds.	F.S. Operations
G. MAC group phone conference at 0730**	F.S. Operations
H. Briefing - prescribed fire - resources.	F.S. Operations
I. Keep Line Officers informed.	*Directorate
J. Prescribed burning operations: Except for prescribed burning projects of low complexity, on going or new projects must be approved by respective directors.	*Directorate

PREPAREDNESS LEVEL III (Cont.)

K. Hotshot crew available 7 days
a week.

*Directorate: Director of Fire & Aviation, USFS; Assistant
Regional Director, Refuges, FWS; Associate Regional
Director, Operations, NPS.

**MAC Group: F.S. Operations, Regional Fire Coordinator
NPS, Regional Fire Coordinator FWS.

SOUTHERN REGIONAL PREPAREDNESS PLAN**PREPAREDNESS LEVEL IV**

Description: Several units are unable to fill requests internally and require SACC assistance. Four or more units experiencing incidents requiring a commitment of Southern Area resources - high number of fires becoming Class E or larger. Additional resources are being mobilized from outside the area. More than two incident management teams are committed in the Area. Predicted weather is expected to continue for 48-72 hours.

ACTION**ASSIGNED TO**

- | | |
|---|------------------|
| A. SACC allocates resources according to priorities set by the MAC Group. | SACC Coordinator |
| B. Consult with field offices to determine need and availability for prepositioning of resources. | SACC Coordinator |
| C. MAC group activated and located in Forest Service Regional Office.** | F.S. Operations |
| D. Prescribed burning only in areas designated by Directors, or discontinue Area-wide. | *Directorate |
| E. Activate interagency public information Group. | MAC Group |

SPECIAL ACTION**ASSIGNED TO**

- | | |
|--|------------------|
| A. Put Overhead Team on standby or alert as determined by Area or National fire situation. | SACC Coordinator |
| B. Stage crews at locations as determined by Area and National Fire situation. | SACC Coordinator |

PREPAREDNESS LEVEL IV (Cont.)

- | | | |
|----|--|------------------|
| C. | Lead plane and pilots on standby after hours and days off as determined by Area/National fire situation. | SACC Coordinator |
| D. | Preposition or extend hours of Air Tankers and Helicopters as determined by Area fire situations. | SACC Coordinator |

*Directorate: Director of Fire and Aviation, USFS; Assistant Regional Director, Refuges, FWS; Associate Regional Director, Operations, NPS.

**NPS and FWS members of the MAC group may be available at the Forest Service Regional Office only on a daily or periodic basis.

SOUTHERN REGIONAL PREPAREDNESS PLAN

PREPAREDNESS LEVEL V

Description: No area resources are available. Four or more Class E fires are burning. Predicted fire weather to continue for 72 hours or more.

ACTION

ASSIGNED TO

A. No prescribed fire without approval*

****Directorate**

*Reference BIFC memorandum on prescribed burning dated May 14, 1991.

****Directorate:** Director of Fire and Aviation, USFS; Regional Director, FWS; Regional Director, NPS; South Central and Southeastern compact chairpersons.

PREScribed FIRE PLAN AND EVALUATION

BURN PERMIT NO: _____

STATION NAME:

1. LOCATION: T _____ R _____ SECT. _____ (SEE MAP ATTACHED)

LAT. _____ LONG. _____ UTM _____

OTHER _____

UNIT NAME:

ACRES: GROSS-
BURN-

COUNTY:

VEGETATIVE COVER TYPES:

OVERSTORY: SPECIES SIZE/AGE ACRES CROWN COVER ACREAGE %

TOTAL

UNDERSTORY: SPECIES AGE ACRES COVER% TOTAL FUEL MODEL

TOTAL

2. PLANNED COSTS:

STAFF <u>DAYS</u>	LABOR <u>COST</u>	EQUIPMENT & <u>SUPPLY COST</u>	TOTAL <u>COST</u>	91XX <u>\$\$</u>	1261 <u>\$\$</u>	OTHER <u>\$\$</u>
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3. NATURAL ROLE OF FIRE:

5. OBJECTIVES:

PRIMARY OBJECTIVE:

SECONDARY OBJECTIVE:

SPECIFIC OBJECTIVES:

% UNDERSTORY KILL:

% CROWN SCORCH:

% 1 HR FUELS CONSUMED:

% 10 HR FUELS CONSUMED:

HT. BARK SCORCH:

% ORGANIC MATERIAL REMOVED:

OTHERS:

% MINERAL SOIL EXPOSED:

6. CONDITIONS NEEDED TO ACHIEVE OBJECTIVES:

A. DESIRED FIRE BEHAVIOR:

	<u>LOW</u>	<u>DESIRED</u>	<u>HIGH</u>	<u>OBSERVED*</u>
				<u>TIME</u> <u>TIME</u> <u>TIME</u>
FLAME LENGTH(ft):				
RATE OF SPREAD (ft/min):				
ENERGY RELEASE COMPONENT:				

B. BURNING FACTORS:

	<u>LOW</u>	<u>DESIRED</u>	<u>HIGH</u>	<u>OBSERVED*</u>
				<u>TIME</u> <u>TIME</u> <u>TIME</u>
TEMPERATURE:				
RELATIVE HUMIDITY (%):				
WIND SPEED (20)':				

*-YOU MAY ATTACH FIELD FIRE BEHAVIOR OBSERVATIONS AND WEATHER READINGS

DIRECTION:

MIDFLAME WIND SPEED:

DIRECTION:

CLOUD COVER (%):

1 HR FUEL MOISTURE (%):

10 HR FUEL MOISTURE (%):

CUMULATIVE DROUGHT INDEX:

LIVE FUEL MOISTURE (%):

SOIL MOISTURE (%):

DAYS SINCE RAIN:

RAIN AMOUNT (INCHES):

BURNING SEASON:

IGNITION METHOD:

TYPE OF IGNITION:

C. MINIMUM IGNITION/HOLDING/CONTROL NEEDS:

NO. PERSONNEL:

EQUIPMENT NEEDS: **

FLAMMABILITY OF ADJACENT FUELS:

****ACTUAL EQUIP/MANPOWER NEEDS WILL BE SPECIFIED ON DAY OF BURN.**

****COMMUNICATIONS WILL BE SPECIFIED IN PREBURN BRIEFING.**

7. SMOKE MANAGEMENT:

REQUIRED FORECASTED ACTUAL

TRANSPORT WIND SPEED (MPH):

WIND DIRECTION:

MIXING HEIGHT (FT):

ATMOSPHERIC STABILITY (STAG):

TARGET AREAS:

VISIBILITY HAZARDS:

HEALTH HAZARD:

SMOKE MGT. MAP ATTACHED: Yes _____ No _____

8. SAFETY CONSIDERATIONS:

All personnel will wear required PPE equipment (Nomex clothing, boots, fire shelter, gloves, hard hat, eye protection) at all times. All fire management will be in accordance with policies listed in 6 RM 7. Escape routes will be made known to all fire line personnel. Safety zones will be the fire lines, ponds, creeks, roads or other natural barriers. Emergency Medical Evacuation Plan will be reviewed with Burn Crew during preburn briefing.

9. CONTINGENCY PLAN FOR WILDFIRE OCCURRING WHILE PRESCRIBED BURN IS BEING CONDUCTED:

- A. If fire burns outside the specified perimeter limits, that cannot be contained by on site resources, the fire will then become a wildfire.
- B. All prescribed firing operations will cease.
- C. Available holding forces will perform initial attack.
- D. A burn will not proceed if adequate suppression forces are not available. Coordination and consultation with local cooperators will be required for the purpose of limiting the number of fires burning in an area.

10. NATIONAL AND REGIONAL CONSTRAINTS:

When preparedness levels exceed Regional guidelines, further burn authorization will be required (see Attachment 3).

11. SPECIAL CONSIDERATIONS:

SECTION 7 evaluation has been completed is on file at Refuge Office.

12. POST BURN EVALUATION:

DATE: _____

A. Degree as to which objectives were met:

General: _____

Specific:

	<u>Desired</u>	<u>Accomplished</u>
Hardwood Kill	75-90%	_____
1 Hour Fuels Consumed	50-90%	_____
10 Hr Fuels Consumed	50-80%	_____
Organic Soil Removed	1-8 in	_____
Other _____		

B. Deviation from plan: _____

C. Smoke problems: _____

D. Any escapes: _____

E. Spotting: _____

F. Any complaints: _____

G. General comments:

13. ACTUAL COSTS:

	<u>Staff</u> <u>Days</u>	<u>Labor</u> <u>Cost</u>	<u>Equipment &</u> <u>Supply Cost</u>	<u>Total</u> <u>Cost</u>	<u>9120</u> <u>\$</u>	<u>1260</u> <u>\$</u>	<u>Other</u> <u>\$</u>
Administration	_____	_____	_____	_____	_____	_____	_____
Site Preparation	_____	_____	_____	_____	_____	_____	_____
Ignition & Control	_____	_____	_____	_____	_____	_____	_____
TOTAL	_____	_____	_____	_____	_____	_____	_____
<u>Cost per Acre</u>	\$ _____ Additional Helicopter Standby Cost: _____						

EXAMPLE OF PRESCRIBED MANAGEMENT BURN

PRESCRIBED FIRE PLAN AND EVALUATION

BURN PERMIT NO:# _____

STATION: Okefenokee NWR

1. LOCATION: (SEE MAP ATTACHED)

NAME: C1-1

ACRES: GROSS- 650
BURN- 630LEGAL DESCRIPTION: LL 27, 9th Dist. Ware Co. Ga.
LAT 31 05, LON 82 16

GEORGIA FORESTRY COMMISSION BLOCKS: D 72, E 72

VEGETATIVE COVER TYPES:

OVERSTORY:	SPECIES	SIZE/AGE	ACRES	CROWN COVER	ACREAGE %
	LLP/SP	ST/80	315	25%	50%
	LLP	PC/6	63	5%	10%
	SP	ST/40	95	60%	15%
	PP	PW/25	157	50%	25%

TOTAL 630

UNDERSTORY:	SPECIES	AGE	ACRES	COVER %	TOTAL	FUEL MODEL
	Mixed grass	4	63	80%	10%	2
	Gall/Pal	4	347	95%	55%	7 →
	Mixed Hdwd	8	157	75%	35%	6

TOTAL 630

2. PLANNED COSTS:

STAFF	LABOR	EQUIP &	TOTAL	91XX	1261	OTHER
DAYS	COST	SUPP	COST	\$\$	\$\$	\$\$
5	5,000	1,000	6,000	6,000		

3. NATURAL ROLE OF FIRE: Periodic wildfires once maintained Longleaf Pine/Wiregrass community throughout most of the burning unit.

4. FIRE HISTORY: Prescribed fires 1974, 1978, 1983, 1988. Wildfire in Blocks 17, 18 and 22 in 1984.

5. OBJECTIVES:

PRIMARY OBJECTIVE: Hazard Reduction

SECONDARY OBJECTIVE: Begin restoration of Longleaf Pine/Wiregrass Community with dormant season fires. Growing season fire may be used next burning cycle after fuels are reduced.

SPECIFIC OBJECTIVES:

UNDERSTORY KILL: 75-90% MINERAL SOIL EXPOSED: 10-30%
 1 HR FUELS CONSUMED: 50-90% 10 HR FUELS CONSUMED: 50-80%
 HT. BARK SCORCH: 8 ft (max) % ORGANIC MATERIAL REMOVED: NA
 CROWN SCORCH: 30% (max)
 OTHERS: Kill 50-100% volunteer slash pine in longleaf pine plantation.

6. CONDITIONS NEEDED TO ACHIEVE OBJECTIVE:

A. DESIRED FIRE BEHAVIOR:

	LOW	DESIRED	HIGH	OBSERVED
FLAME LENGTH (ft)	1	3 - 5	7	_____
RATE OF SPREAD (ft/min)	1	2 - 4	6	_____
ENERGY RELEASE COMPONENT	10	40	70	_____

B. BURNING FACTORS:

	LOW	DESIRED	HIGH	OBSERVED
TEMPERATURE	--	40 - 50	75	_____
RELATIVE HUMIDITY (%)	25	30 - 45	65	_____
WIND SPEED (20') (mph)	5	8 - 15	20	_____
MIDFLAME WIND SPEED (.4 x 20' w)	2	3 - 6	8	_____
DIRECTION		W-NW-N		_____
CLOUD COVER (%)	--	0 - 15	60	_____
1 HR FUEL MOISTURE (%)	6	10 - 20	25	_____
10 HR FUEL MOISTURE (%)	10	15 - 20	25	_____
BURNING INDEX	15	30 - 50	75	_____
CUMULATIVE DROUGHT INDEX	75	100 - 400	550#	_____
LIVE FUEL MOISTURE (%)	60	70 - 150	200	_____
SOIL MOISTURE				_____
DAYS SINCE RAIN	1	2 - 5	7	_____
LAST RAIN AMOUNT (in)	--	--	--	_____
BURNING SEASON	December - March			_____
IGNITION METHOD	Backing or Spot Head			_____
TYPE OF IGNITION	Base Lines - Ground Crews			_____
	Interior - Ground Crews or Aerial			_____

C. MINIMUM IGNITION/HOLDING/CONTROL NEEDS:

NO. PERSONNEL: 5 (min)
 EQUIPMENT NEEDS: Transport, tractor-plow unit, engine, water tender (1200 gal), hand tools. If aerial ignition is used, helicopter and aerial ignition device. **

FLAMMABILITY OF ADJACENT FUELS: Three year old plantation adjacent to burning unit on Union Camp Corp lands. Tall grass in planted pines. Very flammable.

** ACTUAL EQUIP/MANPOWER NEEDS WILL BE SPECIFIED ON DAY OF BURN.
 ** COMMUNICATIONS WILL BE SPECIFIED IN PREBURN BRIEFING.

If CDI is greater than 400, burning is permissible only if Burning Index is 30 or less. Mop-up must be complete within 100 ft of all base lines (OTHER INDEXES MAY BE USED).

7. SMOKE MANAGEMENT:

	REQUIRED	FORECASTED	ACTUAL
TRANSPORT WIND SPEED (mph)	> 9	_____	_____
WIND DIRECTION	W-NW-N	_____	_____
MIXING HEIGHT (ft)	> 1650	_____	_____
ATMOSPHERIC STABILITY (STAG)	_____	_____	_____

TARGET AREAS: Okefenokee Swamp Park (adjacent); Waycross (10 miles north).
VISIBILITY HAZARDS: Ga. Hwy 177 (adjacent, west); US Hwy 1 (4 miles east).
HEALTH HAZARD: Public visiting Okefenokee Swamp Park.
SMOKE MGT. MAP ATTACHED: YES

8. SAFETY CONSIDERATIONS:

All personnel will wear required PPE equipment (Nomex clothing, boots, fire shelter, gloves, hard hat, eye protection) at all times. All fire management will be in accordance with policies listed in 6 RM 7. Escape routes will be made known to all fire line personnel. Safety zones will be the fire lines, ponds, creeks, roads or other natural barriers. Emergency Medical Evacuation Plan will be reviewed with Burn Crew during preburn briefing.

9. CONTINGENCY PLAN:

When fire is discovered outside the specified perimeter limits of the burn unit:

- A. All firing operations will cease.
- B. Available holding forces will perform initial attack.
- C. If fire burns outside the specified perimeter limits, and cannot be contained by on site resources, or if planned firing operations must be cancelled due to escape, the fire will then be declared a wildfire. Suppression actions will be initiated.
- D. When preparedness levels exceed Regional guidelines, further burn authorization will be required.

10. NATIONAL AND REGIONAL CONSTRAINTS:

A burn will not proceed if adequate suppression forces are not available. Coordination and consultation with local cooperators will be required for the purpose of limiting the number of fires burning in an area.

11. SPECIAL CONSIDERATIONS:

SECTION 7 evaluation has been completed and is on file at Refuge Office.

Although objectives are to remove as much fuel as possible, care will be taken to limit crown scorch. The unit contains several upland hardwood areas, fire will be kept out of these areas. Special care will be taken to protect historic/archeological sites.

Contacts: Union Camp Corporation, Okefenokee Swamp Park, Georgia Forestry Commission, Dixon Memorial Forest

12. POST BURN EVALUATION:

DATE: _____

A. Degree as to which objectives were met:

General: _____

Specific:	Desired	Accomplished
Understory Kill	75-90%	_____
1 Hour Fuels Consumed	50-90%	_____
10 Hr Fuels Consumed	50-80%	_____
Mineral Soil Exposed	10-30%	_____
Crown Scorch	30% (max)	_____
Bark Scorch Height	8 ft (max)	_____
Other		_____

B. Deviation from plan: _____

C. Smoke problems: _____

D. Any escapes: _____

E. Spotting: _____

F. Any complaints: _____

G. General comments: _____

13. ACTUAL COSTS:

	Staff Days	Labor Cost	Equipment & Supply Cost	Total Cost	9120 \$	1260 \$
Administration	_____	_____	_____	_____	_____	_____
Site Preparation	_____	_____	_____	_____	_____	_____
Ignition & Control	_____	_____	_____	_____	_____	_____
TOTAL	_____	_____	_____	_____	_____	_____
Cost per Acre \$	_____	Additional Helicopter Standby Cost: _____				

EXAMPLE OF PRESCRIBED NATURAL FIRE

PRESCRIBED FIRE PLAN AND EVALUATION

BURN PERMIT NO: # _____

STATION: Hotfoot NWR

1. LOCATION: (SEE MAP ATTACHED)

NAME: Freds Marsh

ACRES: GROSS- 3200
BURN - 3200

LEGAL DESCRIPTION: Sec 1, 2, 3, 5, 6; T19N, R12W, Boggy Bottom Co. Ga.

GEORGIA FORESTRY COMMISSION BLOCKS: D 72, E 72

VEGETATIVE COVER TYPES:

OVERSTORY: None

UNDERSTORY:	SPECIES	AGE	ACRES	% COVER	% TOTAL	FUEL MODEL
	Marsh grass	Ann	1600	100%	50%	3
	Mixed Hdwd	16	1600	90%	50%	6

TOTAL 3200

2. PLANNED COSTS:

STAFF	LABOR	EQUIP &	TOTAL	91XX	1261	OTHER
<u>DAYS</u>	<u>COST</u>	<u>SUPP</u>	<u>COST</u>	<u>\$\$</u>	<u>\$\$</u>	<u>\$\$</u>
5	5,000	1,000	6,000		6,000	

3. NATURAL ROLE OF FIRE: Periodic lightning caused wildfires kill back hardwood brush encroaching into open areas of the marsh.

4. FIRE HISTORY: Lightning caused wildfire in 1976 burned over 75% of the marsh.

5. OBJECTIVES:

PRIMARY OBJECTIVE: Habitat Management

SECONDARY OBJECTIVE: N/A

SPECIFIC OBJECTIVES:

HARDWOOD KILL: 75-90%

1 HR FUELS CONSUMED: 50-90% 10 HR FUELS CONSUMED: 50-80%

ORGANIC MATERIAL REMOVED: 1-8 in

OTHERS: Kill any volunteer pines existing in the marsh.

6. CONDITIONS NEEDED TO ACHIEVE OBJECTIVE:

A. DESIRED FIRE BEHAVIOR:

	<u>LOW</u>	<u>DESIRED</u>	<u>HIGH</u>	<u>OBSERVED</u>
FLAME LENGTH (ft)	3	5 - 10	20	_____
RATE OF SPREAD (ft/min)	1	4 - 8	10	_____
ENERGY RELEASE COMPONENT (ERC)	20	60	80	_____

B. BURNING FACTORS:

	<u>LOW</u>	<u>DESIRED</u>	<u>HIGH</u>	<u>OBSERVED</u>
TEMPERATURE	--	40 - 80	95	_____
RELATIVE HUMIDITY (%)	25	30 - 45	65	_____
WIND SPEED (20') (mph)	5	8 - 15	20	_____
MIDFLAME WIND SPEED (.4 x 20' w)	2	3 - 6	8	_____
DIRECTION		SW-W-NW-N		_____
CLOUD COVER (%)	--	0 - 15	60	_____
1 HR FUEL MOISTURE (%)	6	10 - 20	25	_____
10 HR FUEL MOISTURE (%)	10	15 - 20	25	_____
BURNING INDEX	15	30 - 50	75	_____
CUMULATIVE SEVERITY INDEX	75	100 - 400	550#	_____
LIVE FUEL MOISTURE (%)	60	70 - 150	200	_____
SOIL MOISTURE				_____
DAYS SINCE RAIN	1	2 - 5	7	_____
LAST RAIN AMOUNT (in)	--	--	--	_____
OTHER FACTORS				_____
Freds Lake Staff Gauge	27.0	28.0-29.5	30.0	_____
BURNING SEASON		May - February		_____
IGNITION METHOD		Natural		_____
TYPE OF IGNITION		Lightning or Other		_____

C. MINIMUM IGNITION/HOLDING/CONTROL NEEDS

NO. PERSONNEL: Monitor and Patrol 1
Standby Holding and Burnout Team 6

EQUIPMENT NEEDS: CWN Fixed Wing Aircraft to monitor burn.
Standby: Transport, tractor-plow unit, engine. If aerial burnout is necessary, helicopter and aerial ignition device.**

FLAMMABILITY OF ADJACENT FUELS: Bottomland hardwoods west of Dike Road. Corn Field north of North Dike (may carry fire during late summer). Fallow field on hillside south and east of Freds Creek. High west winds may cause some spotting across creek.

** ACTUAL EQUIP/MANPOWER NEEDS WILL BE SPECIFIED ON BRIEFING PLAN.
** COMMUNICATIONS WILL BE SPECIFIED IN DAILY BRIEFING.

If CSI is greater than 400, burning is permissible only if Burning Index is 30 or less. Mop-up must be complete within 100 ft of all base lines.

10. NATIONAL AND REGIONAL CONSTRAINTS:

A burn will not proceed if adequate suppression forces are not available. Coordination and consultation with local cooperators will be required for the purpose of limiting the number of fires burning in an area.

11. SPECIAL CONSIDERATIONS:

SECTION 7 evaluation has been completed and is on file at Refuge Office.

Contacts: Countryside Retirement Home, Georgia Forestry Commission, Boggy Bottom County Sheriff.

12. POST BURN EVALUATION:

DATE:

A. Degree as to which objectives were met:

General:

<u>Specific:</u>	<u>Desired</u>	<u>Accomplished</u>
Hardwood Kill	75-90%	_____
1 Hour Fuels Consumed	50-90%	_____
10 Hr Fuels Consumed	50-80%	_____
Organic Soil Removed	1-8 in	_____
Other _____		_____

B. Deviation from plan: _____

C. Smoke problems: _____

D. Any escapes: _____

E. Spotting: _____

F. Any complaints: _____

G. General comments:

13. ACTUAL COSTS:

	<u>Staff</u> <u>Days</u>	<u>Labor</u> <u>Cost</u>	<u>Equipment &</u> <u>Supply Cost</u>	<u>Total</u> <u>Cost</u>	9120 \$	1260 \$	Other \$
Administration	_____	_____	_____	_____	_____	_____	_____
Site Preparation	_____	_____	_____	_____	_____	_____	_____
Ignition & Control	_____	_____	_____	_____	_____	_____	_____
TOTAL	_____	_____	_____	_____	_____	_____	_____
<u>Cost per Acre</u>	\$ _____	Additional Helicopter Standby Cost: _____					

7. SMOKE MANAGEMENT

	LOW	FORECASTED	ACTUAL
TRANSPORT WIND SPEED (mph)	> 9	_____	_____
WIND DIRECTION	SW-W-NW-N	_____	_____
MIXING HEIGHT (ft)	> 1650	_____	_____
ATMOSPHERIC STABILITY (STAG)	_____	_____	_____

TARGET AREAS: Countryside Retirement Home (.5 mile north of burning unit, adjacent to Refuge boundary); County Road (Dike Road) west side of burning unit.

VISIBILITY HAZARDS: Dike Road (adjacent, west).

HEALTH HAZARD: Countryside Retirement Home (2 staff and 6 inmates)

SMOKE MGT. MAP ATTACHED: YES

SMOKE MANAGEMENT STRATEGY: If prescribed wind conditions occur during fire, smoke management problems will be minimal. Suppression action will be initiated if prescribed wind directions do not occur. If wind shifts should occur or are predicted, impacting target areas during the prescribed natural fire, one or more of the following actions will be initiated:

- The prescribed natural fire will be declared a wildfire and suppression action will be initiated.
- If time permits, remaining unburned area will be burned out before the predicted wind shift.
- In case of visibility problems, the Boggy Bottom County Sheriff will direct traffic on Dike Road.
- Residents of the Countryside Retirement Home may be moved to a facility at Moose Junction.

After burn is completed, the water control structure on Dike Road will be closed to flood the marsh, extinguishing any smoldering debris. Flooding will take two days. Area will be patrolled for residual smoke until flooding is completed.

8. SAFETY CONSIDERATIONS:

All personnel involved in monitoring and standby during fire will wear required PPE equipment (Nomex clothing, boots, fire shelter, gloves, hard hat, eye protection) at all times. All fire management will be in accordance with policies listed in 6 RM 7. Escape routes will be made known to all fire line personnel. Safety zones will be the fire lines, ponds, creeks, roads or other natural barriers. Posted Refuge Safety Plan contains emergency medical evacuations procedures and is a topic of refuge safety meetings annually.

9. CONTINGENCY PLAN:

When fire is discovered outside the boundaries of the prescribed natural fire area:

- Available holding forces will perform initial attack
- If fire burns outside the specified perimeter limits, and cannot be contained by on site resources, the fire will then be declared a wildfire. Suppression actions will be initiated.
- State suppression units will be notified.
- When preparedness levels exceed Regional guidelines, further burn authorization will be required.

PREBURN BRIEFING

BURN PERMIT NO.: _____

DATE: _____

A. LOCATION: T _____ R _____ SECT. _____ ACRES: _____

LAT. _____ LONG. _____ UTM _____

OTHER: _____

B. BURN OBJECTIVES:

PRIMARY:

SECONDARY:

C. DESIRED FIRE BEHAVIOR:

DESIREDPREDICTEDOBSERVED

FLAME LENGTH: _____

RATE OF SPREAD: _____

1. FIRING METHOD:

2. TYPE OF FIRE:

3. FIRING SEQUENCE:

4. MAPS AND PHOTOS:

D. WEATHER:

DESIREDPREDICTEDOBSERVED

TEMPERATURE: _____

RELATIVE HUMIDITY: _____

1 HR. FUEL MOISTURE: _____

10 HR. FUEL MOISTURE: _____

WIND SPEED (20'):

WIND DIRECTION:

WIND SPEED (IN STAND):

WIND DIRECTION:

BURNING INDEX:

CDI:

(REFUGE NAME) PRESCRIBED FIRE PLANS

REFUGE: _____ PLAN PERIOD _____

<u>BURN UNIT</u>	<u>BURN ACRES</u>	<u>91XX</u>	<u>1261</u>
------------------	-------------------	-------------	-------------

TOTAL	_____	_____	_____
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PREPARED BY: _____ DATE _____

SUBMITTED BY: _____ DATE _____

REVIEWED BY: _____ DATE _____
REGIONAL FIRE COORDINATOR

APPROVED BY: _____ DATE _____
ASSOCIATE MANAGER

E. CREW AND EQUIPMENT ORGANIZATION:

BURNING BOSS: _____

FIRING BOSS: _____

HOLDING BOSS: _____

FIRE BEHAVIOR/WEATHER OBSERVER: _____

EQUIPMENT ASSIGNMENTS: (SPECIFIC)

DOZER: _____

ENGINE: _____

OTHERS: _____

F. COMMUNICATIONS:

DISPATCHER IDENTIFIED: _____

FREQUENCIES ASSIGNED: GROUND _____ AIR _____

G. SMOKE MANAGEMENT:

	<u>REQUIRED</u>	<u>FORECASTED</u>	<u>ACTUAL</u>
TRANSPORT WIND SPEED:	_____	_____	_____
TRANSPORT WIND DIRECTION:	_____	_____	_____
MIXING HEIGHT:	_____	_____	_____
ATMOSPHERIC STABILITY:	_____	_____	_____

SMOKE TRAJECTORY PLOTTED? YES _____ NO _____ (INCLUDE MAP)

SMOKE SENSITIVE AREAS IDENTIFIED? YES _____ NO _____

SMOKE SIGNS NEEDED? YES _____ NO _____ If "YES"--location(s) _____

GO---NO GO (CIRCLE ONE)

H. SAFETY:

ALL PPE is on the fireline personnel? _____ ALERT for snakes? _____

Everybody has fireshelthers? _____ ALERT for snags? _____

Safety zones identified? _____ Aircraft safety? _____

Helispots known? _____ Helispot posted? _____

Escape routes identified? _____ Drinking water? _____

Emergence Medical Evacuation Plan reviewed?: _____

Other? _____

I. SPECIAL CONSIDERATIONS:

ENDANGERED PLANTS? _____ LOCATIONS: _____

ENDANGERED ANIMALS? _____ TELEMENTARY: _____

HUNTERS IN AREA NOTIFIED? _____ VISITORS NOTIFIED? _____

HIGHWAY PATROL/POLICE NOTIFIED? _____ NEWS MEDIA NOTIFIED? _____

ADJACENT LANDOWNERS NOTIFIED? _____ COOPERATORS NOTIFIED? _____

ANY problem areas? YES ____ NO ____ If "YES" where? _____

ALL firelines checked and complete? YES ____ NO ____

J. AUTHORIZATION:

Test fire results indicate objectives will be met.

Signed-Position Held-Date